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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/634,540	08/05/2003	Wai Cheung	889712-31	6055

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EXAMINER

TRAIL, ALLYSON NEEL

ART UNIT	PAPER NUMBER
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2876

DATE MAILED: 02/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/634,540

Applicant(s)

CHEUNG ET AL.

Examiner

Allyson N Trail

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Claim Objections***

2. Claim 1 is objected to because of the following informalities:

Lines 1, 3, and 6 of claim 1 disclose a 2D symbol. Lines 4-5 however, of claim 1, recite "the 2D bar-code". Please clarify and make consistent the claim language or further limit the 2D symbol to be a 2D bar-code.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Sant'Anselmo et al (4,924,078).

*Claim 1 of the current invention discloses the following:*

A method for guiding a scanning device to decode a 2D symbol, the method comprising: providing a set of substantially parallel positioning lines to the 2D symbol, the positioning line having a different slope than a horizontal axis of the 2D bar-code;

and scanning the 2D symbol together with positioning lines to produce a scanned image.

Sant'Anselmo et al teaches the following in regards to claim 1:

"The present invention is a symbol 10 that includes a square array 12 of data cells 14 surrounded by a border 30 of orientation and timing data cells. The border 30 can be surrounded by an external data field 18 also including information data cells 20. The orientation and timing for sampling each data cell can be determined from the border 30 or from additional orientation and timing cells in the internal data field 12 or external data field 18. A system 40 and 42 is also included that captures an image of the symbol, determines symbol orientation, decodes the contents of the symbol and outputs the decoded contents to a display or other device. The present invention also includes a device 48 that can produce symbols on a substrate such as a label."  
(Abstract).

Figure 10D shows the border including bars 110 and 108, which are positioning bars that have a slope different from the horizontal axis of the 2D bar-code.

*Claim 2 of the current invention discloses the following:*

The method as recited in claim 1, wherein the positioning lines are provided on at least one side of the 2D symbol.

Sant'Anselmo et al shows multiple figures where the positioning lines are provided on at least one side of the 2D symbol.

*Claim 3 of the current invention discloses the following:*

The method as recited in claim 1, wherein the positioning lines are superimposed upon the 2D symbol, and in a color different from a color of bars in the 2D symbol.

Sant'Anselmo et al teaches the following in regards to claim 3:

As shown in the figures, the positioning lines are superimposed upon the 2D symbol. It is taught that the data cells are represented as gray shades on a gray scale or using colors on a color scale ranging from ultraviolet to infrared. The border, which is superimposed, is shown to be in a different color than the data cells. (Col. 6, lines 57-66).

*Claim 4 of the current invention discloses the following:*

The method as recited in claim 1, further comprising determining an orientation of the 2D symbol in the scanner image in reference to the positioning lines.

See Sant'Anselmo et al teaching's regarding claim 1. The positioning lines talked about above, are used to determine the orientation of the 2D symbol in order to be scanned.

*Claim 5 of the current invention discloses the following:*

The method as recited in claim 4, wherein at least one of the positioning lines includes a plurality of teeth.

Figures 6 and 7 taught by Sant'Anselmo et al show the positioning lines including a plurality of teeth.

*Claim 6 of the current invention discloses the following:*

The method as recited in claim 5, wherein the teeth is used to correct distortion in the scanned image.

Sant'Anselmo et al teaches figure 7, which discloses the following:

A symbol 10 with timing data cells 100 external to the border 16. Timing cells of this type can also be used as additional orientation data cells to help determine the three-dimensional orientation of the symbol. (Col. 5, lines 51-55).

*Claim 7 of the current invention discloses the following:*

The method as recited in claim 1, wherein the positioning lines are in a color different from that of bars in the 2D symbol.

See Sant'Anselmo et al teaching's regarding claim 3.

*Claim 8 of the current invention discloses the following:*

The method as recited in claim 7, wherein the color absorbs first illumination from the scanning device.

Sant'Anselmo et al teaches the following in regards to claim 8.

"The border is typically formed from "on" data cells where an "on" cell can be a light reflecting or light absorbing spot depending on the application." (Col. 2, lines 52-61).

*Claim 9 of the current invention discloses the following:*

The method as recited in claim 7, wherein the color reflects second illumination from the scanning device.

See Sant'Anselmo et al teaching's regarding claim 8.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 10-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sant'Anselmo et al in view of Wurz et al (5,979,761).

Claim 10 of the current invention discloses the following:

A scanning device for decoding a 2D bar-code attached with a set of equally spaced positioning lines, the scanning device comprising: a signal processing chip; a document detection module connecting to the processing chip for sending a paper signal when the 2D symbol presents and exists; an image sensor sensing the 2D symbol and producing analog signals; an analog-to-digital conversion (ADC) module receiving and digitizing the analog signals from the image sensor to produce a digital image thereof in a memory space; and a flash memory for storing a decoding software, wherein the decoding software is configured to perform operations of: detecting the positioning lines in the digital image; determining a slope of the positioning lines with respect to a slope of the 2D symbol; and determining an orientation of the 2D symbol.

Sant'Anselmo et al's teachings were discussed above. Additionally, Sant'Anselmo et al teaches the following in regards to claims 10:

"The orientation of the symbol 10 with respect to a reference system can be determined using known graphics techniques when the location of three corners are

known. Knowing the orientation of the symbol 10 provides the orientation of the object to which the symbol 10 is attached. Alternately, using standard slope formulas, the border 16 can provide information defining the rotation or orientation of a symbol 10 in a plane parallel to the image capture plane using the following equation.  $S12 = (Y2 - Y1) / (X2 - X1)$  (5), where S12 is the slope relative to a reference axis. The value of S12 can be verified using the following equations:  $S13 = (Y3 - Y1) / (X3 - X1)$  and  $S12 = 1 / S13$ , where S23 is the slope of a border line perpendicular to S12." (Col. 3, lines 38-59).

"Using these formulas along with the slope formulas previously discussed it is possible to determine the location of any data cell in the image." (Col. 4, lines 8-10).

Although Sant'Anselmo et al teaches a scanning method, Sant'Anselmo fails to teach the specific features of the scanning device, which are disclosed in claim 10.

*Wur z*

~~Danielson~~ et al teaches the following in regards to claim 10:

*1/25/04*

A bar code laser scanner including the following features:

"In operation, when a bar code symbol passes through the X scan pattern, a portion of the incident light is reflected back toward the scanner where it is detected by a beam collection apparatus, such as a photo detector 29, as shown in FIG. 2. The photo detector 29 converts the received detected light into an electrical signal, which is then converted into a digital signal by an analog to digital converter, (not shown). This signal is forwarded to a decoding means, (not shown), such as a microprocessor, which processes the signal to determine the data representative of the light and dark portions of the scanned coded symbology. The microprocessor uses the information to



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reconstruct the bar code symbol using reconstruction and decoding techniques that are well known to those of skill in the art." (Col. <sup>4</sup>8, lines <sup>29-42</sup>~~1-13~~). 9/15  
1/25/04

In view of Wurz et al's teaching, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to include in the scanner taught by Sant'Anselmo et al, all the of the features disclosed in Wurz et al's reference. Scanners that perform decoding of the barcode contain decoding software. Additionally, it is common for scanners to include an analog to digital converters in order to have a digital image of the coded symbol.

Regarding claims 11-15, see Sant'Anselmo et al's teaching above.

### **Conclusion**

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Christian (2004/0004126), Ma (6,565,003), Lemelson et al (6,543,691), Roxby et al (6,533,181), Xu (6,121,574), Lopresti et al (6,115,508), Kubo (5,489,769), Adachi (5,378,881), Iida et al (6,612,497), and Danielson et al (5,640,001).

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to *Allyson N. Trail* whose telephone number is (571) 272-2406. The examiner can normally be reached between the hours of 7:30AM to 4:00PM Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G. Lee, can be reached on (571) 272-2398.

Communications via Internet e-mail regarding this application, other than those under 35 U.S.C. 132 or which otherwise require a signature, may be used by the applicant and should be addressed to [[allyson.trail@uspto.gov](mailto:allyson.trail@uspto.gov)].

*All Internet e-mail communications will be made of record in the application file. PTO employees do not engage in Internet communications where there exists a possibility that sensitive information could be identified or exchanged unless the record includes a properly signed express waiver of the confidentiality requirements of 35 U.S.C. 122. This is more clearly set forth in the Interim Internet Usage Policy published in the Official Gazette of the Patent and Trademark on February 25, 1997 at 1195 OG 89.*

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.

Allyson N. Trail  
Patent Examiner  
Art Unit 2876  
January 22, 2004

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